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GEOGRAPHY DIVISION

REQUIREMENTS FOR ORR READING PANEL

May 1958

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May 1949
All Control
D/GG/18

Mapping Data, Map Enclosures, General Studies

A. Mapping Data

In addition to other technical requirements, the Geography Division has special requirements with the field of mapping. The following is a general guide; all information is desired:

1. Mapping organization:
geographic and geologic
institutes and agencies

- (1) History
- (2) Present organization
- (3) Covering work areas
- (4) List of published maps

2. Competency of agencies
individuals in mapping field

3. Reliability of published
maps

- (1) Corrections
- (2) Source materials
- (3) Dates, revisions
- (4) Criticism

4. Sources used in map
compilations

- (1) Journals
- (2) Reports
- (3) Other maps

Survey

- (1) Types
- (2) Dates
- (3) Plans
- (4) Revisions
- (5) Reliability

5. Mapping programs and
mapping deficiencies

- (1) Programs under way and proposed
- (2) Areas inadequately mapped
- (3) Weaknesses in existing maps

6. Geometric data

- (1) Diagrams of triangulation nets
- (2) Control points (lines)
- (3) Gravimetric stations, etc.

7. Aerial photography

- (1) Extent
- (2) Types
- (3) Dates
- (4) Plans
- (5) Reliability
- (6) Use in mapping

- (1) Programs
- (2) Deficiencies

Map Data Classification General Studies

References

(1) Gazetteers

(2) Indexes

(3) Iteration methods

(4) Local usage

Personnel

(1) Geographers

(2) Cartographers

(3) Explorers, etc.

Expedition

(1) Surveying

(2) Scientific

(3) Exploring

Collection

(1) Location

(2) Content

(3) Use

Map procedure

(1) By U.S.

(2) By other

Transmittal

(1) Maps

(2) Map indexes

(3) Map material

(4) Atlases

Map procedure

Map procedure is a term used to describe the process of creating a map. It involves the collection of data, the selection of a map projection, the drawing of the map, and the distribution of the map. The process is often a complex one, involving many different steps and a great deal of technical knowledge. The map procedure is a key part of the cartographic process, and it is essential for the creation of accurate and useful maps.

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I. Geodesy, Gravimetry and Cartography

Topical Outline Guide

Following is a guide to subjects on which there is need for general information or specific data that applies to the USSR, the Satellites, or any other area closely associated with the Soviets in interest or activities. Emphasis should be placed on postwar information and data. Particular attention should be directed towards the reporting of all Soviet "scientific" activities and those sponsored or supported by the Soviets, including any information exchange programs of areas peripheral to the USSR. Any kind of earth-science expedition, survey, or "cultural" program can be used as "cover" for geodetic, astronomical, and gravimetric surveying or other mapping activities.

1. Geodesy

Triangulation (all orders)
Traverse (Poligonometriya; Kussan)
Adjustment of observations
Datums (Pulkovo, Svobodny)
Measurement of base lines
Measurement of long arcs
Determination of earth's radius from arc measurement
Intercontinental ties with USA via Alaska
Extension of Soviet datum into other countries
Theodolites, surveying apparatus and instruments
Radar and Shoran (or equivalent) methods in surveying

2. Astro-
Geodesy

LaPlace stations
Azimuth determination
Astronomic coordinates of position
Longitude determination
Latitude determination, variation of latitude
Standards of accuracy in astro-measurements
Time signals, time service
Instruments in use in astronomic and time observations
Eclipse activities
Lunar photography
Occultation of stars

3. Gravimetry

World program planned by USSR
Gravity stations in USSR
Isostatic topographic reductions
Gravity measuring instruments for use on land
Gravity measuring instruments for use at sea
Gravimetric anomalies (free air, Bouguer)
Gravity in relation to guided missiles and
earth satellite
Gravity requirements for missile systems

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4. Leveling

Determination of mean sea level
Datum for leveling (Kronstadt)
Leveling instruments
Refraction corrections necessary in leveling

5. Cartography

Compilation units (Aerogeodezicheskiye
Prodpryatiya)
Map publishing plants (Kartograficheskiye
Fabriki, and Kartograficheskiye Prodpryatiye
of ministries)
Topographic map series: large- and small-scale
Plans for map production, domestic and foreign
Sheet lines for topographic maps
Soviet map symbols
Security provisions in guarding mapping data
and source materials
Map compilation instruments

6. Photogrammetry

Plans for USSR coverage
Plans for securing necessary ground control
Air-photo triangulation

7. Key Words,
Phrases, and
Topics

Deflection of the vertical (station error)
Ellipsoid of reference (Clarke 1866, Bessel,
International, Krasovskiy)
Triaxial ellipsoid
Geoid
Undulations of the geoid
Solar eclipse method of connecting datums
Star occultation method of connecting datums
Geodetic control (geodetic network)
Geodetic control (positioning) for guided missiles
Isostasy
Gauss-Krueger projection
Electronic and optical methods of distance measurement

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II. Antarctica - Activities by All Countries

A. Plans and Programs

- (1) IGY
- (2) Academy of Sciences (all countries)
- (3) Governmental
- (4) Non-Governmental

B. Field Activities and Operations

- (1) Bases -- Temporary and permanent
- (2) Expeditions -- Land, air, and sea
- (3) Explorations
- (4) Equipment, including instruments
- (5) Polar navigation techniques
- (6) Personnel
- (7) Maintenance and supply
- (8) Cold weather survival
- (9) Polar logistics and support
- (10) Transportation -- Sea, air, surface

C. Research Activities

- (1) Surveys -- Mapping and charting
(geodesy, gravimetry, cartography)
- (2) Aerial photography
- (3) Meteorology
- (4) Oceanography
- (5) Topography -- Landforms, iceforms,
drainage, sub-ice relief, vegetation,
outcrops (moraines)
- (6) Geology
- (7) Resources, including whale, seal,
fish, minerals
- (8) Glaciology
- (9) Polar navigation problems
- (10) Environmental protection problems
- (11) Satellite observations and rocket
operations

D. Political

- (1) Claims and sovereignty
- (2) International relations, disputes
- (3) U.N. activities
- (4) Reported military activities
- (5) Demilitarization, peaceful uses
- (6) Administration
- (7) Problems of international law
- (8) Evolution of policies

E. Exchanges

- (1) Personnel, observers
- (2) Data, publications

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Whaling

- (1) Open seasons
- (2) Quotas
- (3) Catch
- (4) Oil production
- (5) Vessels and methods; factories;
catcher boats
- (6) Conservation
- (7) International conventions, conferences

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Geographical Information
Western Hemisphere

A. Natural Features

- | | | |
|---------------|--|--|
| 1. Terrain | All information | <ul style="list-style-type: none"> (1) Plains, valleys, mountains, passes, caves, volcanoes, beaches, coastlines. (2) Physiographic (geomorphic) (3) Spot elevations (4) Natural disasters such as earthquakes, volcanic eruptions, floods, landslides. |
| 2. Drainage | All information | <ul style="list-style-type: none"> (1) Courses of rivers, perennial or intermittent (2) Nature of flow (3) Periods of high and low water (4) Potability of water (5) Marshes and swamps (6) Subsurface drainage (7) Water supply, springs, etc. |
| 3. Vegetation | All information | <ul style="list-style-type: none"> (1) General information on vegetation zones (2) Types of timber trees and their location (3) Forest reserve areas (4) Edible plants and their distribution (5) Poisonous plants and their distribution |
| 4. Soils | General information. No soils chemistry, structure or cross sections | <ul style="list-style-type: none"> (1) Distribution of soil types (2) Conservation and stabilization of soils: tree belts, grasses |
| 5. Geology | General information | <ul style="list-style-type: none"> (1) Surface areal geology (2) Unexploited mineral reserves (3) Water table depths |
| 6. Climate | All descriptive and statistical data which would aid in the climatic analysis of an area | <ul style="list-style-type: none"> (1) Climatic regions (2) Seasonal descriptions (3) Temperature (4) Precipitation (5) Winds, air masses (6) Visibility, cloudiness |

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III. Western Hemisphere

B. Cultural Features

1. Transportation and Communications

- | | | |
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| a. Roads | All information except volume of traffic, equipment, grades, axle load | (1) Alignment
(2) Surface, foundation, width
(3) Seasonality
(4) Bridges, tunnels, ferries
(5) Distances
(6) Construction under way; proposed plans |
| b. Railroads | All information except volume of traffic, weight of rails, grades, curves | (1) Alignment, trackage
(2) Gauge; and interchange points
(3) Electrification
(4) Bridges, tunnels, ferries
(5) Stations, terminal points, timetables
(6) Sidings, passing loops, marshalling yards
(7) Ownership
(8) Distances
(9) Construction under way and plans
(10) Abandoned lines |
| c. Inland waterways: canals, navigable rivers, and lakes | All information | (1) Alignment
(2) Minimum widths and depths
(3) Seasonality
(4) Location of locks
(5) Ownership
(6) Location of docks |
| d. Oil, gas, and water pipelines | All information except details of servicing and operations | (1) Alignment
(2) Surface or underground
(3) Size
(4) Pumping and booster stations
(5) Ownership |
| 2. Political boundaries, international and internal | All information (including Treaty, basis for and description of boundaries) | (1) Boundary locations; status, definition, delimitation, demarcation, recognition by US
(2) Boundary changes
(3) Boundary problems
(4) Changes in administrative divisions or capitals |

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III. Western Hemisphere

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| | | (5) Special administrative divisions |
| | | (6) Sovereignty status (independent nation, colony, protectorate, etc.) |
| | | (7) Territorial waters; marginal seas |
| | | (8) Territorial claims |
| 3. Population | All information except <u>unofficial</u> estimates | (1) Statistics by small or medium-sized units |
| | | (2) Distribution and density; movement of people; change in patterns |
| | | (3) Ethnography: race, nationality, tribe, religion, language |
| | | (4) Census programs |
| | | (5) Health: incidence of disease |
| | | (6) Colonization; settlements |
| 4. Agriculture and forest crops | Broad treatment, trends | (1) Annual reports |
| | | (2) Agricultural projects: irrigation, drainage, colonization, reclamation |
| | | (3) Systems of land tenure |
| | | (4) Land use |
| 5. Minerals, including petroleum | All information except technical problems in production | (1) Mine sites and oil fields; installations |
| | | (2) Annual tonnage and average grade of ore; oil yields |
| | | (3) Processing plants, locations |
| | | (4) Services: water supply and power supply; loading facilities |
| | | (5) Transportation facilities |
| 6. Other occupations: commercial fishing, lumbering | All information exclude individual sawmills | |

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III. Western Hemisphere

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| 7. Power | Information on <u>major</u>
plant locations and
dams only; no small
industrial power
plants | (1) Hydro-electric plants
(2) Thermo-electric plants
(3) Construction projects
(4) Regional developments
(5) Dams |
| 8. Water supply | All information of
a general nature | (1) Reservoirs
(2) Purification works
(3) Dam sites |
| 9. Cities and
town | All descriptive or
analytical information
except individual
buildings | |
| 10. Military data | Only general
information | (1) Military administrations
(2) Military zones
(3) Occupation zones |

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Far East/Pacific Branch

A. Natural Features

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|---------------|---|--|
| 1. Terrain | All information | <ul style="list-style-type: none"> (1) Mountains, valleys, plains, beaches, coastlines, etc. (2) All elevations and relief (3) Physiographic regions (4) References to physical maps (5) Natural disasters: earthquakes, floods, landslides, etc. (6) Potential drop-zone and landing sites |
| 2. Drainage | All information | <ul style="list-style-type: none"> (1) Courses of rivers, perennial all intermittent (2) Lakes, shorelines (3) Salt, fresh, or brackish waters (4) Marshes and swamps (5) Subsurface drainage (6) Water supply, springs etc. (7) Rivers, fordable or non-fordable (8) Hydrographic survey programs including all information relating to watershed development |
| 3. Vegetation | All information | <ul style="list-style-type: none"> (1) General information on vegetation types (2) Timber types (3) Forest reserve areas (4) Reforestation program |
| 4. Soils | General information
No soils chemistry, structure or cross sections | <ul style="list-style-type: none"> (1) Soils zones (2) Soils types (3) Soil conservation programs |
| 5. Geology | General information | <ul style="list-style-type: none"> (1) Surface areal geology (2) Unexploited mineral reserves (3) Water table depths (4) Geological survey programs |
| 6. Climate | All information except "day-to-day" statistics. Summary statistics over one year or longer period are wanted. | <ul style="list-style-type: none"> (1) Climatic regions (2) Seasonal variations (3) Temperature (4) Rainfall (5) Winds |

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7. Oceanography

- (1) Notice of oceanographic surveying expeditions only

B. Cultural Features

1. Transportation and Communications

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|--|--|---|
| a. Roads | All information except technical details of equipment, axle load, etc. | <ol style="list-style-type: none"> (1) Alignment (2) Surface, foundation, width (3) Seasonality (4) Bridges, tunnels, ferries (5) Distances (6) Construction under way; proposed plans (7) Volume and character of traffic (8) "Bottlenecks"; critical gradients, etc. |
| b. Railroads | All information except technical details of rolling stock | <ol style="list-style-type: none"> (1) Alignment, trackage (2) Gauge; interchange points (3) Electrification (4) Bridges, tunnels, ferries (5) Stations, terminal points, timetables (6) Sidings, passing loops, marshalling yards (7) Ownership (8) Distances (9) Construction under way and plans (10) Abandoned lines (11) Volume and character of traffic (12) Profiles; ruling grades (13) General description of rolling stock (not technical details) (14) "Bottlenecks" |
| c. Air | All information except airport facilities, aids to navigation, and regulations | <ol style="list-style-type: none"> (1) Airfield locations (2) Routes and terminal points (3) Ownership (4) Distances |
| d. Inland waterways: Canals, navigable rivers, and lakes | All information | <ol style="list-style-type: none"> (1) Alignment (2) Minimum widths and depths (3) Seasonality (4) Locks (5) Ownership (6) Docks (7) Volume and character of traffic |

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| e. Ports | All general information | (1) Terminal facilities
(2) Warehouses
(3) Wharves
(4) Type and volume of commodities handles |
| f. Oil, gas, and water pipelines | All information except details for servicing and operations | (1) Alignment
(2) Surface or underground
(3) Size
(4) Pumping and booster stations
(5) Ownership |
| g. Electric powerlines | All information except details of servicing and operations | (1) Alignment; networks
(2) Capacity
(3) Transformer stations
(4) Consumers. |
| h. Telecommunications | All information of general nature | (1) Alignment; networks
(2) Cable, telegraph, radio, and telephone stations |
| 2. Political Boundaries, International and Internal | All information (including Treaty basis for and description of boundaries) | (1) Boundary locations; status
Definition, delimitation, demarcation, recognition by US |
| 3. Population and Sociology | All information | (1) Statistics by small or medium-sized units
(2) Distribution and density; movement of people; change in patterns
(3) Ethnography: race, nationality, tribes, religion, language, customs, dress, taboos, food, shelter and primitive transportation
(4) Census programs
(5) Health: incidence of disease
(6) Colonization; settlements
(7) "Social control" mechanisms |
| 4. Agriculture and forest crops | All information | (1) Crop distribution by small or medium-sized units
(2) Animal distribution by small or medium-sized units
(3) Agricultural projects: irrigation, flood control, drainage, colonization, reclamation |

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| | | (4) Systems of land tenure; collectivization, etc. |
| | | (5) Land use |
| 5. Minerals including petroleum | All information except technical problems in production | (1) Mine sites and oil fields, installations
(2) Annual tonnage and average grade of ore; oil yields
(3) Processing plants
(4) Services: water supply and power supply; loading facilities
(5) Transportation facilities
(6) Consumers |
| 6. Industry | Information on location and annual production and input requirements of all industries | (1) Industry distribution
(2) Industrial complexes
(3) Regional studies |
| 7. Other occupations: Commercial fishing, lumbering | All information | |
| 8. Power | Information on plant locations and dams, including small industrial power plants | (1) Hydro-electric plants
(2) Thermo-electric plants
(3) Construction projects
(4) Regional developments
(5) Dams
(6) Diesel and other internal combustion plants for generating electricity |
| 9. Water supply | All information of a general nature | (1) Reservoirs
(2) Purification works
(3) Dam sites |
| 10. Cities and towns; ports | All descriptive or analytical information | |
| 11. Trade; export and import | General information | (1) Pattern of goods distribution and consumption; market areas; flow |

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| 12. Labor | General information | <ul style="list-style-type: none"> (1) Size of labor force for various industries (2) Sociological composition of labor force by various industries (3) Migration of labor |
| 13. Military data | Only general information but order-of-battle summaries are wanted. No technical military information desired. | <ul style="list-style-type: none"> (1) Military administration (2) Military zones (3) Occupation zones (4) Border control techniques; location of border control units and local garrison forces (5) Extent and nature of military control over civilian population |

C. Current Political Information

We are interested in those materials which provide summary-type information on major political developments and trends within our area, including: elections, development of issues that may prove critical to the ruling government, security measures being taken against Communist elements, and gains or losses of the Communist Party.

We are not interested in reports dealing with "behind the scenes" maneuvering and intrigues of individual political figures.

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